<u>In the Claims</u>

1. (Currently Amended) Apparatus for detecting luminescence in a sample, in which light emitted by the sample is collected for transmission to photosensitive detector means by an optical fibre bundle the cross-sectional area of which corresponds to the area of the sample and one end of which is located close to but spaced from the sample for directly illuminating the sample and collecting light emitted therefrom, selected ones of the fibres making up the bundle are separated from the remainder and extend to a light source to convey the light for direct illumination of the sample, and other fibres of the bundle serve to collect light emitted from the sample due to luminescence and provide a light path therefor to the photosensitive detector means, wherein the light collecting fibres are divided into a plurality of groups for conveying light to different regions of the detector means, thereby providing parallel light paths from the sample to the detector, and a wavelength selective filter is located in each of the said light paths to permit only selected wavelengths of light to reach the region of the detector means associated with each light path, and wherein the fibres in the bundle are arranged in a symmetrical pattern so that in the end face of the bundle presented to the sample, each sample illuminating fibre is surrounded by a ring of six light collecting fibres which, around the ring, successively constitute fibres appertaining to the respective groups of said light collecting fibres, whereby the sample illuminating fibres and the light collecting fibres are distributed uniformly over the area of the fibre bundle presented to the sample<u>, and in which the apparatus is constructed to interrogate a well plate containing a plurality of wells, by investigating the luminescence characteristics of the plurality of wells at a time using a corresponding number of fibre bundles, wherein two groups of collecting fibres from the plurality of fibre bundles, are collated into two collections each of a corresponding number of fibre bundles, and each of the two collections is presented to one of two wavelength selective filters, each of which has a different wavelength filtering characteristic from the other, and two further bundles of optical fibres downstream of the filters separately collect and transfer light which is transmitted by the two filters, to two discrete regions of the detectors</u>.

2. (Original) Apparatus according to claim 1, wherein the detector comprises a charge coupled

device (CCD) array, a cooled CCD array, an intensified CCD (ICCD) array, or an array of photodiodes or PMT's.

3. (Previously Amended) Apparatus according to claim 1, wherein the wavelength selective filters are interference filters.

4. (Previously Amended) Apparatus according to claim 1, wherein one third of the fibres in the bundle can convey light to the sample, another third of the fibres collect and convey emitted radiation via a first wavelength selective filter to a first region of a detector, and the remaining third of the fibres collect and convey emitted radiation via a second wavelength selective filter to a second region of the detector.

5. (Currently Amended) Apparatus according to claim 1, constructed to interrogate a well plate containing a whole number multiple of 96 wells, by investigating the luminescence characteristics of 96 wells at a time using 96 fibre bundles, wherein two groups of light collecting fibres from the 96 fibre bundles are collated into two collections each of 96 fibre bundles~~, and each of the two collections is presented to one of two wavelength selective filters, each of which has a different wavelength filtering characteristic from the other, and two further bundles of optical fibres downstream of the filters separately collect and transfer light which is transmitted by the two filters, to two discrete regions of the detector~~.

6. (Currently Amended) Apparatus according to claim 5, wherein the said collections of fibres are arranged at their respective filters so as to optimally ~~utilise~~ utilize the area of each filter.

7. (Previously Amended) Apparatus according to claim 1, wherein the detector has a non-circular aspect ratio and fibres leading from the wavelength selective filters to the detector are re-arranged so as to optimally occupy the area of the detector.

8. (Original) Apparatus according to claim 7, wherein the detector is generally square, and the

fibres leading from the interference filter are re-arranged in two rectangular arrays which together make up a square corresponding to the detector.

9. (Original) Apparatus according to claim 5, in which each of the fibre optic bundles presented to a well in the well plate is made up of 45 Ge-doped-silica clad, silica fibres, each of a diameter in the range 100-200 microns, 15 of which are separated out as an excitation sub-bundle and combined with similar excitation sub-bundles of 15 from each of the 96 bundles, and the 96 excitation sub-bundles extend to a source of excitation radiation, and the remaining 30 fibres from each of the 96 bundles are divided into two further sub-bundles each of 15 fibres, to produce a total of 192 emission sub-bundles each of 15 fibres, 96 of which emission sub-bundles lead to discrete positions at the input of a first interference filter and the other 96 of which lead to discrete positions at the input of a second interference filter, which transmits light of a different wavelength from that transmitted by the first filter, and each of the two bundles downstream of the filters is comprised of 96 sub-bundles of fibres, each of which is arranged on a one to one basis with one of the 192 emission sub-bundles, at the input to the filter, and the 192 downstream sub-bundles are merged into an array having the same aspect ratio as the detector.

10. (Previously Amended) Apparatus according to claim 1, wherein a blocking filter is provided in the light path to the detector and the characteristics of the blocking filter are such that light of a wavelength corresponding to that emitted by the sample due to the induced luminescence, is transmitted by the filter but unwanted light of different wavelengths is strongly attenuated thereby.

11. (Original) Apparatus according to claim 10, wherein the blocking filter is located in advance of a wavelength selective interference filter between it and the ends of optical fibres transmitting light from the sample to the interference filter, or between the interference filter and the detector.

12. (Previously Amended) Apparatus according to claim 10 , wherein the blocking filter has a sharp cut-off between transmission and attenuation, and a high attenuation of wavelengths below

the cut-off point and is selected to provide 50% attenuation at a wavelength closer to the wavelength of the wanted radiation than to the wavelength of the nearest component of the unwanted radiation.

13. (Original) Apparatus according to claim 12, wherein fluorescence is produced by fluorescein and the blocking filter is a Schott filter, Type OG515.

14. (Previously Amended) Apparatus according to claim 10, wherein the blocking filter is used in combination with an angle collimating device.

15. (Original) Apparatus according to claim 14, in which the angle collimating device is comprised of a fused fibre optic plate of the order of 5-10mm thickness, which is mounted in advance of the detector input.

16. (Original) Apparatus according to claim 15, wherein the angle collimating device is made from glass fibres of low numerical aperture of the order of 0.30.

17. (Previously Amended) Apparatus according to claim 1, wherein a GRIN lens is used to focus light passing through the wavelength selective filters.

18. (Previously Amended) Apparatus according to claim 10 wherein a first blocking filter is located in advance of the interference filter and a second blocking filter is located beyond the interference filter, between it and the detector.

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